SAFETY & HEALTH LEARNING ALLIANCE

Ergonomics in the Workplace

June 16, 2015

1-2:30 p.m. (EDT)

Presenters

- **Dr. Jim McGlothlin**, Professor of Ergonomics, Purdue University
- **LTC Jay Clasing**, Ergonomics Program Manager, US Army Institute of Public Health
- **Camille Major**, Certified Professional Ergonomist

Summary

Facilitator: Mike Lipka, Knowledge Officer, NASA Safety Center

Attendees: 113

Purpose of the Safety and Health Learning Alliance: Share experiences and collaborate ideas across various government and defense agencies, related industries, and professional organizations for the mutual goal of achieving high levels of safety and health.

Goal: Increase involvement, communication, and participation among safety and health professionals.

The SHLA website includes a video of the presentation. Please submit questions, comments, and event recommendations on the website or by emailing NASA-NSC@nasa.gov.

Questions

Round 1: Dr. Jim McGlothlin

➢ **Are you involved in any ergonomic evaluations in your role at Purdue? If so, can you speak to issues?**

Yes, I helped to establish an ergonomics program at Purdue University and I also work very closely with the Radiological Environmental Management group for their office ergonomic evaluations. I'm involved with a lot of clients, including the NASA Glenn Research Center—which I'm very proud of and I enjoy working with the GRC people.

➢ **What are your thoughts on the use of standing workstations?**

That's a bit of a mixed bag. It depends on age, if there are lower circulation issues, whether or not individuals are using shoe inserts to reduce fatigue… I like the idea of sit/stand workstations to take a load of some of the lower body. I think the standing workstations should be driven by the lack of a footprint for a workstation and also if they're handling heavier loads. It tends to be a complex, almost case by case basis as far as answers to that question go. What I have seen though is that older workers who stand all day who aren't given any type of foot or leg relief tend to suffer more than some of the younger workers who tend to be a little more resilient. I don't

think standing workstations are targeted more towards younger workers, but that's more of what the outcomes are. To me, the big remedy for the complex issue of standing workstations is a sit/stand workstation.

- **What do you do when the employer asks, "What do the regulations say?**

It's still citable under 5a1 under the General Duty clause and it is still cited by OSHA in some of the largest industry finds in the challenges of ergonomics. It was a support mechanism when I was with NIOSH and investigating the meat packing industry and trying to understand the musculoskeletal problems associated with that industry. As a result, the meat packing industry realized we weren't trying to hold them up or slow them down, on the contrary, we were trying to help them realize that better tools, sharper knives, and better worker posture move their product through faster. It was a win-win situation, but it did take a bit of convincing at first. Most folks who see you at first think you're a big stop sign. Then they realize it not only about making a safety and healthier workplace, but it's also about enhancing it and taking care of your number one asset—your workers.

- **What current research is underway by NIOSH? Any follow-ups to the epidemiologic studies?**

NIOSH's big push right now is to focus on different sectors of industry, such as agriculture and the fishing industry. Their main emphasis is on prevention through design when it comes to ergonomics. When it comes to epidemiological studies, most of those are farmed out as grants to academics. I don't have first-hand information on any large scale studies that were going on right now like they were in the 1980s and 1990s.

Round 2: LTC Jay Clasing

- **Do you still reference the 2000 DoD Human Engineering Design Data Digest Technical Reference?**

No, we have not lately. We do use 1472G Design Guidelines that have just been reissued. Some new anthropometric data from the Marine Corps will be published very soon. But that's more selective and least generalizable, but it's still something we'll look at.

- **If attendance to ergonomics classes one may provide are low, how can that be remedied?**

That's a tough sell sometimes. A lot of the employees we see when we go to a site are told to attend. Sometimes that good and sometimes that's bad. We try to make it as relevant as possible. We try to make it an applied course with only maybe a day or a half a day of didactic presentational learning and then we go to the employees actual workplace and have them make a guided ergonomic assessment. That improves employee buy-in a great deal because it's applied, relevant, and their making improvements to their own workspace, not one that we hypothetically create in a classroom. If we can't go offsite to their workstation, we have them bring in pictures of it or even pictures of what they think are good workplaces or bad workplaces. They can have some type of buy-in that way too. Engaging them and having hands-on type of applied education is the way to go. If we're dealing with management or an industrial hygienist, versus a line worker we will tailor the training and provide ideal material for their different focuses and attention spans.

> ***Comment from Dr. Jim McGlothlin**: "Incorporating participatory exercises is helpful and the word spreads that the course is interactive and fun...for my students, the flexed wrist and pencil grip exercise usually gets their attention and there are several more such exercises. Maybe another fun Webinar on this topic would be "how to spice up your ergonomics presentation."*

***Comment from audience member**: "I did just what James McGlothlin recommends and it works. Starts out slow but once it catches on and word spreads the courses became filled."*
***Comment from audience member**: "I've seen that anytime we get the person involved in the ergonomics study they tend to complain less and see things more realistic. It's interesting how once we go in to do an assessment and others find out what we can do to make things more comfortable everyone wants in. I have witnessed some terrible settings where ergonomic assessment has made a huge difference."*

- **Is keeping your mouth open while firing artillery still a standard practice to reduce injury?**

A number of years ago, I went to an artillery greening course where they teach your artillery basics. They did not teach us that as a standard.

- **Do you cooperate with other branches of the military?**

We work with the Navy in particular, as they're revamping their ergonomics coursework. We don't necessarily do assessments for them, but we're very open to doing joint ergonomics projects as they come up. I remember teaming up with the Air Force to do a project on the Blackhawks at Lakota. A lot of their sensors they were already certified for airworthiness and they had an extensive background with fixed wing aircraft, so we paired up with them.

- **Should ergonomics be limited by budgetary constraints? Many employees are told they cannot make changes or get new equipment due to costs. Any recommendations?**

Budget is always the big thing. For military and government civilian employees, if they have a physical need documented by a physician, there is a Computer and Electronic Assistant Program. It's a website you can use to order specific equipment to help mitigate a particular musculoskeletal problem.

***Comment from LTC Jay Clasing**: "The Army's HHA program has a ROI tool called the Medical Cost Avoidance Model that looks at the total cost of injuries to include direct and indirect costs such as lost work time and disability costs. Currently, it's only for active duty service members, but will hopefully grow to include our civilian staff in the next few years."*

- **Why is ergonomics treated differently from other hazards? As in employees almost wait until they get hurt before the problem is fixed.**

There is not a single instance or single exposure that creates a musculoskeletal problem—it's a cumulative over time and there's not a magical diagnosis we can perform to determine that symptom A is caused by this certain repetitive motion. We found it very difficult and challenging to essentially to tell the prevention piece of it. We would love to get in on the ground floor of any type of technology that could help to determine ergonomically related issues. I wish we could do more.

***Comment from audience member**: "We don't wait until a welder coughs to give them a respirator."*
***Comment from Dr. Jim McGlothlin**: "As mentioned in my talk, if it does not bleed it does not lead."*
***Comment from audience member**: "But should that medical documentation be necessary? We should be proactive, not reactive."*
***Comment from Dr. Jim McGlothlin**: "What is the cost for reduced productivity, rework, increased scrap work, sick days, etc.? These things can be quantified and show a value proposition to ergonomics."*
***Comment from audience member**: "Productivity goes up when the employee is comfortable."*
***Comment from audience member**: "The IH mantra is 'A Happy Employee is a Productive Employee'"*

> ***Comment from Dr. Jim McGlothlin**: "There is a body of evidence that connects worker job satisfaction and musculoskeletal injuries/illnesses. Unhappy workers tend to report more back and upper limb injuries. Mental-Physical Stress Model."*

Comment from audience member: "And while it's probably obvious, make sure they are aware that what they learn is not just for work, they can apply it at home. It's the "what's in it for me" carrot."

Round 3: Camille Major

- **What do you think of software that tracks keystrokes and tells the employee when to take a break?**

I like those types of programs, but there's a catch to them. I think it's great when the computer tracks and collects data, because our perception of time worked is never the same as reality. Especially on things like social media. However, sometimes the metrics might be reprimanded on the amount (too many or too little) of keyboard strokes. So as employees are not penalized for ergonomic metrics, I think it's a good idea.

> ***Comment from Dr. Jim McGlothlin**: "Careful with generic ergo programs. ErgoSmart is a nice tool but there are several free tools to use. Also, safety issues with yoga balls. Feels good at first but back/legs are under tension to maintain balance."*
> ***Comment from audience member**: "We have a program called RSIGuard that does this same thing. It's great! It makes you aware of how long you have been in one position, tension on the keystrokes, etc."*
> ***Comment from LTC Jay Clasing**: "I agree with Jim. We strongly discourage yoga balls for a chair."*
> ***Comment from Dr. Jim McGlothlin**: "As for ErgoSmart, I love Physical Therapists but their training is directed more toward treating injuries than preventing them. The key is to get ahead of the problem."*
> ***Comment from audience member**: "That's what Ergo Smart does; i.e., it's form of an engineering control that Camille is talking about."*
> ***Comment from Dr. Jim McGlothlin**: "ErgoSmart the company is run by a PT. Most of their consultants are PTs. They do provide a valuable service but I have found that on site job/engineering analyses tend to be challenging for this group of professionals."*
> ***Comment from audience member**: "Our program gives us pop-up reminders for posture, stress, etc. But then it also gives us stretch breaks with video stretches."*
> ***Comment from Dr. Jim McGlothlin**: "The ErgoSmart (office ergo tool) is usually turned off by employees as being annoying and something "big brother" is watching."*

- **What are your thoughts building an ergonomic team consisting of people from industrial health, safety, possibly nursing, and purchasing?**

I think it's necessary. You all have a horse in the race so to say. I think we can all help each other. We need to recognize our expertise is in one area and then contribute to a team.